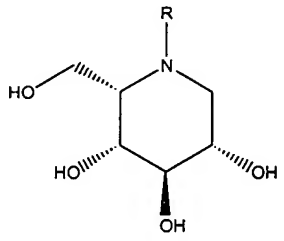
AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in this application.

1. (Original) A compound of formula (I) or a pharmaceutically acceptable salt or prodrug thereof :



(I)

wherein

R is C_{1-3}alkylAr^1 where Ar^1 is phenyl or pyridyl;
wherein phenyl is substituted by one or more substituents selected from CN, CON(R^1)$_2$, SO_nR^2, $SO_2N(R^1)_2$, $N(R^5)_2$, $N(R^1)COR^2$, $N(R^1)SO_nR^2$, C_{0-6}alkylAr^2, C_{2-6} alkenylAr^2 and C_{3-6} alkynylAr^2 wherein one or more of the -CH_2- groups of the alkyl chain may be replaced with a heteroatom selected from O, S and NR^3, provided that when the heteroatom is O, at least two -CH_2- groups separate it from any additional O atom in the alkyl chain; or two adjacent substituents on the Ar' phenyl may together form a fused 5- or 6-membered saturated or unsaturated ring wherein the ring optionally contains 1 or 2 heteroatoms selected from O, S and NR^4 and is optionally substituted by one or more substituents selected from, an oxo group, C_{1-6}alkyl and C_{0-3}alkylAr^4;
and the Ar^1 phenyl is optionally substituted by one or more additional substituents selected from F, Cl, Br, CF_3, OCF_3, OR^3 and C_{1-6}alkyl;

and wherein pyridyl is substituted by one or more substituents, selected from, CN, $CON(R^1)_2$,SO_nR^2, $SO_2N(R^1)_2$, $N(R^5)_2$, $N(R^1)COR^2$, $N(R^1)SO_nR^2$, F, Cl, Br, CF_3, OCF_3, OR^3,C_{1-6} alkyl, C_{0-6}alkylAr^2, C_{2-6}alkenylAr^2 and C_{3-6} alkynylAr^2 wherein one of the -CH_2- groups of the alkyl chain may be replaced with a heteroatom selected from O, S and NR^3, provided that when the heteroatom is O, at least two - CH_2- groups separate it from any additional O atom in the alkyl chain; or two adjacent substituents on the Ar' pyridyl may together form a fused 5- or 6-membered saturated or unsaturated ring wherein the ring optionally contains 1 or 2 heteroatoms selected from O, S and NR^4 and is optionally substituted by one or more substituents selected from, an oxo group, C_{1-6}alkyl and C_{0-3}alkylAr^4;

R^1 is H, C_{1-6}alkyl optionally substituted by OH, Ar^3, or C_{1-6} alkylAr^3 , or the group $N(R^1)_2$ may form a 5-to 10-membered heterocyclic group optionally containing one or more additional heteroatoms selected from O, S and NR^3 and is optionally substituted by an oxo group;

R^2 isC_{1-6}alkyl optionally substituted by OH, Ar^3, or C_{1-6}alkylAr^3;

R^3 is H, or C_{1-6}alkyl;

R^4 is H, C_{1-6}alkyl or C_{0-3}alkylAr^4;

R^5 is H, C_{1-6}alkyl optionally substituted by OH, Ar^3, or C_{1-6}alkylAr^3, or the group $N(R^5)_2$ may form a 5-to 10-membered heterocylic group optionally containing one or more additional heteroatoms selected from O, S and NR^3 and is optionally substituted by an oxo group;

Ar^2 and Ar^3 are independently phenyl or a 5-to 10-membered heteroaryl group containing up to 3 heteroatoms selected from O, S and NR^3, which may be optionally substituted by one or more substituents selected from F, Cl, Br, CN, CF_3, OCF_3, OR^3 and C_{1-6}alkyl ;

Ar^4 is phenyl or pyridyl either of which may be optionally substituted by one or more substituents selected from F, Cl, Br, CN, CF_3, OCF_3, OR^3 and C_{1-6}alkyl;

and n = 0, 1 or 2.

2. (Original) A compound as defined in claim 1 wherein R is C_1alkylAr^1.

3. (Currently Amended) A compound as defined in claim 1, ~~or 2~~ wherein Ar^1 is phenyl, wherein phenyl is substituted as defined ~~for~~ in claim 1.

4. (Currently Amended) A compound as defined in ~~any of claims 1 to 3~~ claim 1, wherein Ar1 is phenyl, wherein phenyl is substituted by one or more substituents selected from CN, $CON(R^1)_2$, $N(R^5)_2$, and C_{0-6} alkylAr^2 wherein one or more of the -CH_2- groups of the alkyl chain may be replaced with a heteroatom selected from O, S and NR^3, provided that when the heteroatom is O, at least two -CH_2- groups separate it from any additional O atom in the alkyl chain, or two adjacent substituents on the Ar_1 phenyl may together form a fused 5- or 6-membered saturated or unsaturated ring wherein the ring optionally contains 1 or 2 heteroatoms selected from O and NR^4 and is optionally substituted by one or more substituents selected from, an oxo group,C_{1-6}alkyl and C_{0-3}alkylAr^4, and the Ar^1phenyl is optionally substituted by one or more additional substituents selected from F,Cl, Br, CF_3, OCF_3, OR^3 and C_{1-6}alkyl.

5. (Currently Amended) A compound as defined in ~~any one of the preceding claims~~ claim 1, wherein Ar^1 is phenyl, wherein phenyl is substituted by one or more substituents selected from CN, $CON(R^1)_2$, $N(R^5)_2$, and C_{0-6}alkylAr^2 wherein one or more of the -CH_2- groups of the alkyl chain may be replaced with O, provided that at least two- CH_2- groups separate it from any additional O atom introduced into the alkyl chain and the Ar^1 phenyl is optionally substituted by one or more additional substituents selected from F, Cl, Br, CF_3, OCF_3, OR^3 and C_{1-6}alkyl.

6. (Currently Amended) A compound as defined in ~~any one of the preceding claims~~ claim 1, wherein Ar^2 is phenyl which is optionally substituted by one or more substituents selected from F, Cl, Br, CN, CF_3, OCF_3, OR^3 and C_{1-6}alkyl.

7. (Currently Amended) A compound as defined in ~~any one of the preceding claims~~ claim 1, wherein R^1 is H, C_{1-6}alkyl or C_{1-6}alkylAr^3.

8. (Currently Amended) A compound as defined in ~~any one of the preceding claims~~ claim 1, wherein R^2 is Ar^3 or C_{1-6}alkylAr^3.

9. (Currently Amended) A compound as defined in ~~any one of the preceding claims~~ claim 1, wherein Ar^3 is phenyl which may be optionally substituted by one or more substituents selected from F, Cl, Br, CN, CF_3, OCF_3, OR^3 and C_{1-6}alkyl.

10. (Currently Amended) A compound as defined in ~~any one of the preceding claims~~ claim 1, wherein R^5 is C_{1-6}alkyl.

11. (Currently Amended) A compound selected from

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1[[2-methoxy-4-(phenylmethoxy)phenyl]methyl]-,(2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[[2-chloro-4-(dimethylamino)phenyl]methyl]-2-(hydroxymethyl)-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[(3-cyano-4-dimethylamino-2-fluorophenyl)methyl]-2-(hydroxymethyl)-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[[(4-acetylamino)phenyl]methyl]-2-(hydroxymethyl), (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[(2,3-dihydrobenzofuran-5-yl)methyl]-2-(hydroxymethyl)-, (2S,3R,4R,5S);

Benzamide, N-[(4-fluorophenyl)methyl]-4-[[2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-;

Benzamide, N-[1-phenylethyl]-4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]-methyl]-;

Benzamide, N-[1-(R)-(4-fluorophenyl)ethyl]-4-[[2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-;

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[[3-(phenylmethoxy)phenyl]methyl]-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[[3-chloro-4-(phenylmethoxy)phenyl]methyl]-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[[4-(phenylmethoxy)phenyl]methyl]-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[[(4-dibutylamino)phenyl]methyl]-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[(4-*trans*-styrylphenyl)methyl]-2-(hydroxymethyl)-, (2S,3R,4R,5S);

Quinoline, 1-[4-[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-benzoyl-1,2,3,4-tetrahydro-;

Benzamide, N-[phenylmethyl]-4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]-methyl]-;

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-(quinolin-6-yl)methyl-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[(3-cyano-4-(dimethylamino)phenyl)methyl)-2-(hydroxymethyl)-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[(3-cyano-4-(diethylamino)-2-fluorophenyl)-methyl]-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[(4-phenoxyphenyl)methyl)]-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[(3,4-ethylenedioxyphenyl)methyl]-2-(hydroxymethyl)-, (2S,3R,4R,5S);

Benzamide, N-[4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]-methyl]phenyl]-;

Benzenesulfonamide, N-[4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-phenyl]-;

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[[4-(2-pyridyl)phenyl]methyl]-, (S2,3R,4R,5S);

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[(2-phenyl-2*H*-1,4-benzoxazin-3(4H)-one-6-yl)methyl]-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[[3,5-dimethyl-4-(phenylmethoxy)phenyl]methyl]-2-(hydroxylmethyl)-, (2S,3R,4R,5S);

3,4,5-Piperidinetriol, 1-[[3-cyano-4-[N-butyl-4-*N*-(2-hydroxyethyl)amino]phenyl]methyl]-2-(hydroxymethyl)-, (2S,3R,4R,5S);

Phenylacetamide, N-[4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]phenyl]-;

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[(2-hexyl-2*H*-1,4-benzoxazin-3(4H)-one-6-yl)methyl]-, (2S,3R,4R,5S);

Benzenesulfonamide, N-[1-(S)-(4-fluorophenyl)ethyl]-4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-;

[2-(S)-phenyl]propionamide, N-[4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]phenyl]-;

3,4,5-Piperidinetriol, 2-(hydroxymethyl)-1-[[2-propyl-2*H*-1,4-benzoxazin-3(4H)-one-6-yl]methyl]-, (2S,3R,4R,5S);

[2-(R)-phenyl]propionamide, N-[4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]phenyl]-;

Benzamide, N-[1-(S)-phenylethyl]-4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-;

Benzamide, N-[1-(R)-phenylethyl]-4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-;

Benzamide, N-[(4-fluorophenyl)methyl]-N-methyl-4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-;

Benzamide, N-hexyl-4-[[(2S,3R,4R,5S)-3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]methyl]-; and

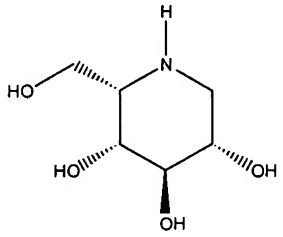
~~as described in any one of Examples 1 to 36 or a~~ pharmaceutically acceptable salts ~~salt~~ or prodrugs ~~prodrug~~ thereof.

12. (Canceled).

13. (Currently Amended) A pharmaceutical composition comprising a compound of formula (I) as defined in ~~any one of claims 1 to 11~~ claim 1, together with one or more pharmaceutically acceptable carriers, excipients and/or diluents.

14. (Currently Amended) A process for the preparation of a compound of formula (I) as defined in ~~any one of claims 1 to 11~~ claim 1, ~~which comprises~~ the process comprising:

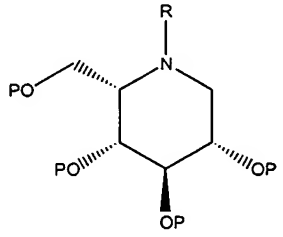
a) reductive amination of an aldehyde of formula R^5CHO wherein R^5 is $C_{0-2}alkylAr^1$ where Ar^1 is as defined in claim 1, with a compound of formula (II):



(II)

or

b) deprotection of a compound of formula (III):



(III)

wherein R is as defined in claim 1 and P, which may be the same or different, are hydroxy protecting groups.

15. (Currently Amended) A method of inhibiting ~~The use of a compound of formula(I) as defined in any one of claims 1 to 11 in the manufacture of a medicament for use as an inhibitor of~~ glucosylceramide synthase in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

16. (Currently Amended) A method of treating ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for the treatment of~~ a glycolipid storage disease in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

17. (Currently Amended) The method of ~~use as claimed in~~ claim 16, wherein the glycolipid storage disease is Gaucher disease, Sandhoffs disease, Tay-Sachs disease, Fabry disease or GM1 gangliosidosis.

18. (Currently Amended) A method of treating a disorder selected from ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for the treatment of~~ Niemann-Pick disease type C, mucopolysaccharidosis type I, mucopolysaccharidosis type IIIA, mucopolysaccharidosis type IIIB, mucopolysaccharidosis type VI, mucopolysaccharidosis type VII, α-mannosidosis ~~or~~ and mucolipidosis type IV in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

19. (Currently Amended) A method of treating ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for the treatment of~~ cancer in which glycolipid synthesis is abnormal in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

20. (Currently Amended) The method of ~~use as claimed in~~ claim 19, wherein the cancer in which glycolipid synthesis is abnormal is selected from[[,]] brain cancer, neuronal cancer,

neuroblastoma, renal adenocarcinoma, malignant melanoma, multiple myeloma and multi-drug resistant cancer.

21. (Currently Amended) A method of treating a disorder selected from ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for use in the treatment of~~ Alzheimer's disease, epilepsy, stroke, Parkinson's disease and ~~or~~ spinal injury in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

22. (Currently Amended) A method of treating ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for use in the treatment of~~ diseases caused by[[,]] (i) infectious microorganisms which utilize glycolipids on the surface of cells as receptors for either the organism itself or for toxins produced by the organism, or (ii) infectious organisms for which the synthesis of glucosylceramide is an essential or important process, in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

23. (Currently Amended) A method of treating ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for use in the treatment of~~ diseases associated with abnormal glycolipid synthesis in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

24. (Currently Amended) A method of treating ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for the treatment of~~ a condition treatable by the administration of a ganglioside in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

25. (Currently Amended) The method of ~~use as claimed in~~ claim 24, wherein the condition is treatable by the administration of a GM1 ganglioside.

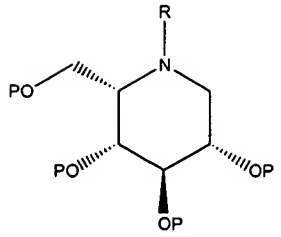
26. (Currently Amended) A method of ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for use in~~ reversibly rendering a male mammal infertile, comprising administering to the male mammal an effective amount of a compound of formula (I) as defined in claim 1.

27. (Currently Amended) A method of treating ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for the treatment of~~ obesity in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

28. (Currently Amended) A method of treating ~~The use of a compound as defined in any one of claims 1 to 11 in the manufacture of a medicament for the treatment of~~ inflammatory diseases or disorders associated with macrophage recruitment and activation in a patient in need thereof, comprising administering to the patient an effective amount of a compound of formula (I) as defined in claim 1.

29. (Currently Amended) The method of ~~use as claimed in~~ claim 28, wherein the inflammatory disease or disorder associated with macrophage recruitment and activation is selected from rheumatoid arthritis, Crohn's disease, asthma and sepsis.

30. (Original) A compound of formula (III):



(III)

wherein R is as defined in claim 1 and P, which may be the same or different, are hydroxy protecting groups.